

Algebra II - Review

Name: _____
MC = 2 Pt - OE = 4 Pts - 80 Pts Total

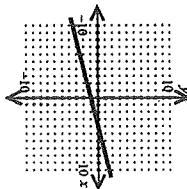
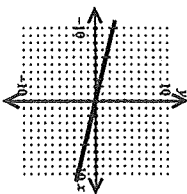
1. The cost of a school banquet is \$70 plus \$11 for each person attending. Determine the equation that models this problem. What is the cost for 65 people?

[A] $y = 11x - 70$; \$645
[B] $y = 11x + 70$; \$785
[C] $y = 70x - 11$; \$4,539
[D] $y = 70x + 11$; \$4,561

2. Write an equation for a line with slope $m = -\frac{1}{4}$ and y-intercept $b = -3$. Then draw the graph of the equation.

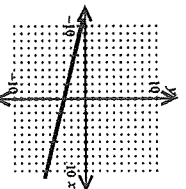
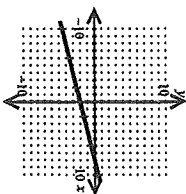
[A] $x = -\frac{1}{4}y - 3$

[B] $-\frac{1}{4}y = x - 3$



[C] $y = x - 3$

[D] $y = -\frac{1}{4}x - 3$



3. Write the slope-intercept form of an equation of the line that passes through the point $(-4, -3)$ and has the slope $m = -3$.

[A] $y = -3x - 15$

[B] $y = 3x - 15$

[C] $y = -3x - 3$

[D] $y = 3x - 3$

4. Write an equation in slope-intercept form for a line that passes through the given pair of points.

[A] $y = \frac{2}{3}x + \frac{2}{11}$

[B] $y = \frac{3}{2}x - \frac{2}{11}$

[C] $y = \frac{2}{3}x + \frac{11}{2}$

[D] $y = -\frac{3}{2}x - \frac{11}{2}$

5. Solve for x .

$3x - 6 = x + 6$

[A] $x = -4$

[B] $x = 6$

[C] $x = 4$

[D] $x = -6$

6. Solve the inequality $4x - 1 \geq 2(x - 3)$ and check your solution. Graph the solution on a number line.

[A] $x > -2.5$

[B] $x \leq -2.5$



[C] $x \geq -2.5$

[D] $x < -2.5$



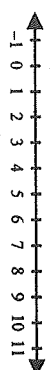
7. Solve the compound inequality. Then graph the solution on a number line.

$2x + 1 > 5$ and $3x + 6 < 30$

[A] x is any real number.



[B] \emptyset



[C] $x < 2$ or $x > 8$



[D] $2 < x < 8$



8. Solve the equation: $|5x - 4| = 3$

[A] $x = \frac{6}{5}$, or $x = \frac{3}{5}$

[B] $x = -\frac{11}{5}$, or $x = \frac{3}{5}$

[C] $x = -\frac{7}{5}$, or $x = \frac{1}{5}$

[D] $x = \frac{7}{5}$, or $x = \frac{1}{5}$

Evaluate the expression.

9. $5 - 8 \cdot 2 \div 4 + 2$

10. $\frac{75 \cdot 5^2 - 3 \cdot 6^2}{6 + 5^2}$

Evaluate the expression.

11. $\left(\frac{7}{4}\right)^3$

[A] $\frac{343}{64}$

[B] $\frac{21}{4}$

[C] $\frac{343}{4}$

[D] $\frac{64}{343}$

Simplify the expression.

12. $\frac{(-k)^3(-k^3)^6}{(k^3)^7}$

[A] $\frac{1}{k^8}$

[B] $-k^{-8}$

[C] k^2

[D] $-\frac{1}{k^2}$

13. $\left(\frac{-7a^2b^3c^0}{5ab^6c^8}\right)^{-5}$

[A] $\frac{7^5a^{15}}{5^5b^5c^{40}}$

[B] $-\frac{5^5a^{15}b^5c^{40}}{7^5}$

[C] $-\frac{5^5b^5c^{40}}{7^5a^{15}}$

[D] $\frac{5^5a^{15}}{7^5b^5c^{40}}$

14. Determine whether the relation is a function and state the domain and the range.

x	y
14	17
19	16
12	11
13	13

15. Since 1993, Isabel Rueda has owned a franchise of take-out restaurants called Cookies Galore. The number of customers, C , in thousands, that Cookies Galore has served each year can be modeled by the function $C(t) = t^2 + 40t + 600$, where t is the number of years from 1993. Using this model, estimate the number of customers served in 1995.

16. For the pair of functions, f and g , find $(f \circ g)(x)$ and $(g \circ f)(x)$.

$f(x) = 4 + 6x$, $g(x) = x^2 + 3$

17. Find the inverse of the function.

$f(x) = \{(-8, 1), (1, -8), (-6, 7)\}$

[A] $f^{-1}(x) = \{(1, -8), (-8, 1), (7, -6)\}$

[B] $f^{-1}(x) = \{(-8, 1), (1, -8), (-6, 7)\}$

[C] $f^{-1}(x) = \{(1, -8), (-8, 7), (7, 7)\}$

[D] none of these

18. Use a graph to solve the system of equations.

$\begin{cases} x + y = -3 \\ y = 2x + 12 \end{cases}$

[A] $(-5, 2)$

[B] $(15, -18)$

[C] $(-1, -2)$

[D] $(-4, 4)$

19. Solve the system of equations by substitution.

$\begin{cases} 2y = 4 \\ x + 3y + 4z = 7 \\ y + 2z = 4 \end{cases}$

[A] $(-3, 2, 1)$

[B] $(1, -3, 2)$

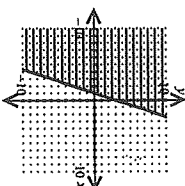
[C] $(2, 1, -3)$

[D] $(-2, 4, -1)$

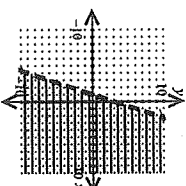
20. Graph the linear inequality.

$3x - y > -3$

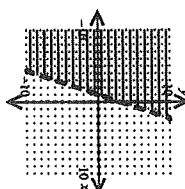
[A]



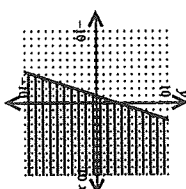
[C]



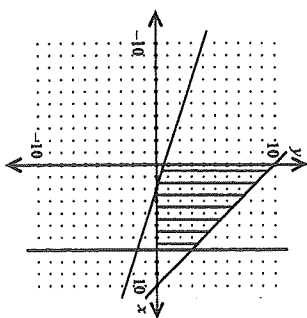
[B]



[D]



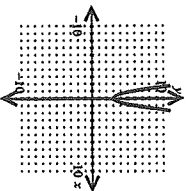
21. Write the system of inequalities whose solution is graphed as the shaded region.



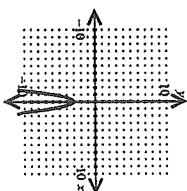
- [A] $\begin{cases} x \geq 0 \\ y \geq 0 \\ x < 7 \\ y < x + 10 \end{cases}$ [B] $\begin{cases} x \geq 0 \\ y \geq 0 \\ x \leq 7 \\ y \leq -x + 10 \end{cases}$ [C] $\begin{cases} x \geq 0 \\ y \geq 0 \\ x < 7 \\ y < -x + 10 \end{cases}$ [D] $\begin{cases} x \geq 0 \\ y \geq 0 \\ x < 7 \\ y \geq -\frac{1}{3}x + 2 \end{cases}$

22. Match the function $f(x) = -3(x+3)^2$ with its graph and coordinates of its vertex.

[A]



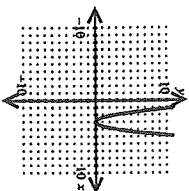
[B]



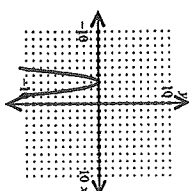
(0, 3)

(0, -3)

[C]



[D]



(3, 0)

(-3, 0)

23. Which of the following is a quadratic function?

- [A] $f(x) = -4x - 4$ [B] $f(x) = -3 + 2^x$ [C] $f(x) = -6 - 9x^3 - 2x^2 + 8x$ [D] $f(x) = -7 + 6x^2 - 8x$

24. Show that the function is a quadratic function by writing it in the form $f(x) = ax^2 + bx + c$ and identifying a , b , and c .

$f(x) = (3x+1)(2x-9)$

[A] $f(x) = 6x^2 - 25x - 9$
 $a = 6, b = -25, c = -9$

[B] $f(x) = 6x^2 + 25x - 9$
 $a = 6, b = 25, c = -9$

[C] $f(x) = 6x^2 - 29x - 9$
 $a = 6, b = -29, c = -9$

[D] $f(x) = 6x^2 - 25x + 9$
 $a = 6, b = -25, c = 9$

25. Solve the equation. Give exact solutions. Then approximate the solution to the nearest hundredth, if necessary.

$3x^2 = 6$

[A] $\pm\sqrt{6}, \pm 2.45$

[B] $\pm\sqrt{2}, \pm 1.41$

[C] $\pm 3\sqrt{2}, \pm 4.24$

[D] none of these

26. Factor the quadratic expression.

$3x^2 - 13x + 14$

[A] $(3x-7)(x+2)$

[B] $(x-2)(3x+7)$

[C] $(3x+7)(x+2)$

[D] $(3x-7)(x-2)$

27. Use factoring and the Zero-Product Property to solve the quadratic equation $3x^2 + 2x - 1 = 0$.

[A] $\frac{1}{3}, -1$

[B] $2, -6$

[C] $-\frac{1}{3}, 1$

[D] $1, -3$

28. Use the quadratic formula to solve the equation.

$8x^2 - 7x = 4$

- Find the discriminant, and determine the number of real solutions. Then solve.

29. $x^2 + 6x + 13 = 0$

[A] $-88; 0, 3 \pm 2i$

[B] $-37; 0, 3 \pm 4i$

[C] $-42; 0, -3 \pm 4i$

[D] $-16; 0, -3 \pm 2i$

30. $3x^2 + 2x - 6 = 0$

31. Simplify: $\frac{3+5i}{9+2i}$

[A] $\frac{37}{85} + \frac{39}{85}i$

[B] $-\frac{37}{85} - \frac{39}{85}i$

[C] $\frac{37}{85} - \frac{39}{85}i$

[D] $-\frac{37}{85} + \frac{39}{85}i$

32. Simplify: $(2+4i)(-8-5i)$

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[1] [B] _____

[2] [D] _____

[3] [A] _____

[4] [D] _____

[5] [B] _____

[6] [C] _____

[7] [D] _____

[8] [D] _____

[9] 3 _____

[10] 57 _____

[11] [A] _____

[12] [D] _____

[13] [B] _____

[14] Yes; domain: {14, 19, 12, 15}; range: {17, 16, 11, 13}

[15] 684,000 _____

$$(f \circ g)(x) = 6x^2 + 22$$

$$[16] (g \circ f)(x) = 36x^2 + 48x + 19$$

[17] [A] _____

[18] [A] _____

[19] [A] _____

[20] [C] _____

[21] [B] _____

[22] [D] _____

[23] [D] _____

[24] [A] _____

[25] [B] _____

[26] [D] _____

[27] [A] _____

$$[28] \frac{7 \pm \sqrt{177}}{16}$$

[29] [D] _____

$$[30] 76, 2, \frac{-2 \pm \sqrt{76}}{6}$$

[31] [A] _____

$$[32] 4 - 42i$$

